Work Order July-11-12 10:34:		19 		*872	219*						Page 1
Item ID: Di Revision ID:	350-748-201			Accept	*N900	040	100)* s	Setup Star	1.7	S1*
Item Name: Cr	rosstube Install	ation, High Aft							Stop	, *N	S2*
Start Date: 7/	10/12	Start Qty: 1.00	*1*	•	Cust Item 1	D:			, .:		
Required Date: 8/3 Reference:	31/12	Req'd Qty: 1.00	*1*	•	Customer:				\$ ¹		
Approvals: P	Process Plan:		Date:///	Tooling:	D:	ate:		F	Run Star Stop	17	R1*
Ç	QC:		Date:	SPC (Y/N):	D:	ate:			Stop	*N	R2*
Sequence ID/ Work Center ID		Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revisi	on Nbr				.					
D350-748-241	F										
*100 *100* DC Document Control	Γ	DOCUMENT CONTRO Memo Photocopy	OL bluefile & type labels p	0.00 0:00 0:07 0:07 0:07 0:07 0:07 0:07	CHG00s2						
110	_			0.00				-			\sim
110 CNC Bend 2 CNC Alpha 160 Bender		BENDING MACHINE Memo Bend tube:	, ·	0.00 241 using CNC bender progra	am D350A and			<u> </u>			1/07
•		Folio FT	DER BEND .225" PER	-							
120	C	QC15- Crosstube Dime	nsional Check	0.00			•				
120 QC Quality Control		Memo		0.00							

Dart Aerospace Ltd

W/0:8	1219	WORK ORDER CHANGES	···.			,	
DATE	STEP	PROCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
		Pine					
		Gel Jall.					
		\ \					

NCR: 12	-1921	e v	ORK OR	DER NON-CONFORMANCI	E (NCR)	· · · · · · · · · · · · · · · · · · ·		
DATE STEP		Description of NC		Corrective Action Section B	Verification	Approval	Approval	
DAIE	SIEP	Section A	Initial Action Description Sig			Section C	Chief Eng	QC Inspector
	,	tube Kinko in Bending	W.	-SCRAP + Dosty	EM	СМ	ald	DAS
1,7,1,011		tube Knks in Bending RAD while Bending	12/10/11	-SCRAP + Dosty No Replie.	12-10-15	12/10/15	12/10/11	(SAS)
12/19		R.C. Procoss MAterial nux	2042	Y12/10/10			75/042	17/0/15
, _,		From Heat tratez		9 19/0/10				
	mpre	7		# 3021.42		\$		
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				. 75.				

Work Orde		219		*872	19*						Page 2
Item ID: Revision ID:	D350-748-20			Accept	*N900	<u>040</u>	100)*	Setup S		VS1*
Item Name:	Crosstube Inst	tallation, High Aft							5	^[VS2 *
Start Date:	7/10/12	Start Qty: 1.00	*1*		Cust Item 1	D:					
Required Date:	8/31/12	Req'd Qty: 1.00	*1*		Customer:						
Reference:											•
Approvals:	Process Pla	ın:	Date:	Tooling:	D:	ate:		1		tart *	VR1*
	QC:		Date:	SPC (Y/N):	Date:				S	top *	VR2*
Sequence ID/ Work Center II	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Numb	
125 HandFXtube		Memo		0.00				_			
Hand Finishing Cro	sstubes	Temp: Start time:	osstube as per QSI010 4.3		,						
127		QC5- Inspect part comple	eteness to step on W/O	0.00							
127		Memo		0.00							

Memo

Quality Control

Dart Aerospace Ltd

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W/O:			W	ORK ORDER CHANG	ES					-
DATE	STEP	PRO	OCEDURE CH	ANGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC inspector
							· · · · · · · · · · · · · · · · · · ·	-		
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	11_									
Part No		PAR #:								
		esolution:							Date:	
NCR:		`	WORK ORD	ER NON-CONFORMA	ANCE	(NCR)				
DATE	STEP	Description of NC	Corrective Action Section B			0: 0	Verific	ation		Approval
	J. 2.	Section A	Initial Chief Eng	Action Description Chief Eng		Sign & Date	Section	on C	Chief Eng	QC Inspector
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Work Ord <i>July-11-12 10:</i>		7219						Page 3				
Item ID: Revision ID:	D350-748-	-201		Accept	*N900	040	100)*	Setup S	===== Start	*N:	S1*
Item Name:	Crosstube I	nstallation, High Aft							5	Stop	*N:	S2*
Start Date: Required Date	7/10/12 :: 8/31/12	Start Qty: 1.00 Req'd Qty: 1.00	*1 [:] *1 [:]		Cust Item I Customer:	D:						
Reference:							_		Run S	Start	-L-16- 1-	
Approvals:	Process P	Plan:	Date:	Tooling:	Da	ate:					* N i	R1*
	QC:		Date:	SPC (Y/N):	Da	ate:				Stop	*N	R2*
Sequence ID/ Work Center I	ID	Operation Description		Set Up/ Run Hours	Tool ID	Tool#	Plan Code	Accep Qty	t Rejec Qty		Reject Iumber	Insp. Stamp
130		Crosstubes		0.00								
Crosstubes		Memo		0.00								
Crosstubes			as per Dwg D350-7 Ill table as per QSI 01	48-241 Using DT8876 Drill Jigs, 10								
		2-Deburr										
		3-Engrave F	art # and Batch # as	per Dwg D350-748-241								
		4-Remove a	ll marks from tube w	ithin limits of D350-748-241								

140

QC6-Inspect dimensions to drawing

5- Apply a light coat of LPS3 on the interior of tube

Batch:

0.00

140

Memo

0.00

Quality Control

Dart Aerospace L	Lta
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D 411710	. oopaoo								
W/O:			W	ORK ORDER CHANGE	ES				
DATE	STEP	PRO	OCEDURE CHA	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
						·			
Part No	:	PAR #:	Fault Cate	gory:	NCR: Yes	No DQ	A:	Date: _	
	Re	esolution:	Dispositio	n: <u>'</u>	QA: N/C CI	osed:		Date:	
NCR:			WORK ORD	ER NON-CONFORMA	NCE (NCF	R)			
DATE	STEP	Description of NC Section A	Initial Chief Eng	Corrective Action Section Action Description Chief Eng	Section B on Sign & Date		cation on C	Approval Chief Eng	Approval QC Inspector

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			1 1		1	I			

Packaging Memo

0.00

Packaging

Ensure certificate of conformity is attached

170

QC5- Inspect part completeness to step on W/O

0.00

170

Memo

0.00

Quality Control

Dart Aerospace

W/O:		WORK ORDER CHANGES											
DATE	STEP	PRO	OCEDURE CH	ANGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector			
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Part No	•	PAR #:	Fault Cate	egory:	_ NCR	: Yes	No DQ	A:	_ Date: _				
	R	esolution:	Disposition	on: <u>`</u>	_ QA:	N/C CI	osed:		Date:				
NCR:			WORK ORDER NON-CONFO										
DATE	STEP	Description of NC			tion B	Cian 6	Verific	ation		Approval			
	0.2.	Section A	Initial Chief Eng	Action Description Chief Eng		Sign 8 Date	Section	on C	Chief Eng	QC Inspector			
													
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Work Ord July-11-12 10:		7219		*872	219*						Page 5
Item ID: Revision ID:	D350-748-	201		Accept	*N900	040	100)*	Setup Sta	rt *N	S1*
Item Name:	Crosstube In	stallation, High Aft							Sto	p *N	S2*
Start Date:	7/10/12	Start Qty: 1.00	*1*		Cust Item I	D:					
Required Date:	8/31/12	Req'd Qty: 1.00	*1*		Customer:						
Reference:			-					_	- 0:		
Approvals:	Process P	lan:	Date:	Tooling:	Da	ate:		J	Run Sta	17	R1*
	QC:		Date:	SPC (Y/N):	Da	ate:			Sto	*N	R2*
Sequence ID/ Work Center I	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180		SprayPaint		0.00							
180 SprayPaint		Memo		0.00							
Spray Painting		1-Prime insi	de crosstube as per QSI (side of Tube as per Dart (005 4.2							
190		QC14- Inspect Spray Pai	nt	0.00							
190 _{QC}		Memo		0.00					·		
Quality Control		Then, Wrap i	in plastic bag to protect f	rom scratches							
200				0.00							
200		Crosstubes		0.00							
Crosstubes		Memo		0.00							

1-Install Ground wire Insert, then insert screw and washer
2-Install Abraision strips as per Dwg D350-748-241 & QSI 035.
3-Install supports Using Dt8876 as per Dwg D350-748-241, Torque to 60-80 IN-

LBS

Crosstubes

Memo

Dart Aerospace	e Ltd
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W/O:			WORK ORDER CHANGES											
DATE	STEP	PRO	PROCEDURE CHANGE				Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector				
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Part No.		PAR #:	Fault Cate	adory:	NCP.	Vac N	lo DO /	<u> </u>	Date:					
		esolution:												
<u> </u>	n								Date:					
NCR:		\	WORK ORDER NON-CON											
DATE	STEP	Description of NC						ation	Approval	Approval				
DAIL	SILF	Section A	Initial Chief Eng	Action Description Chief Eng	S	ign & Date	Section	on C	Chief Eng	QC Inspector				
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	Work Order ID 87219 uly-11-12 10:34:04 AM			*87219*							
Revision ID:	D350-748-201 Crosstube Installation, High Aft			Accept	*N900	<u>040</u>	100)* s	Setup Star	IV	S1* S2*
	7/10/12 8/31/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item l	ID:					
Approvals:		an:	Date:			ate:		F	tun Star Sto	" [V]	R1* R2*
Sequence ID/ Work Center II)	Operation Description QC5- Inspect part compl	eteness to step on W/O	Set Up/ Run Hours 0.00	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210 QC Quality Control		Мето		0.00							
²²⁰ *22∩*		Pick Kit		0.00							
Packaging Packaging		Мето		0.00							
²³⁰ *230*		QC4- 100% Inspect kits	for completeness	0.00							
QC		Memo		0.00							

Quality Control

Dart Aerospace	e Ltd
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W/O:		WORK ORDER CHANGES												
DATE	STEP	PR	OCEDURE CHAI	IGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector				
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·														
Part No	:	PAR #:	Fault Categ	jory:		ICR: Yes	No DQ	A:	Date: _					
	R	esolution:	Disposition	: ¹		A: N/C C	losed:		Date: _					
NCR:		WORK ORDER NON-CONFORMANCE (NCR)												
DATE	STEP	Description of NC	Corrective Action				Verific			Approval				
	J.L.	Section A	Initial Chief Eng	Action Descr Chief Eng		Sign of Date	Section	on C	Chief Eng	QC Inspector				
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Work Order ID 87219 *87219* Page 7 July-11-12 10:34:04 AM D350-748-201 Accept *N900040100* Item ID: Setup Start **Revision ID:** Stop Crosstube Installation, High Aft Item Name: Start Qty: 1.00 **Start Date:** 7/10/12 **Cust Item ID:** Required Date: 8/31/12 **Reg'd Qty:** 1.00 **Customer:** Reference: Run Start Process Plan: Date:_____ **Tooling:** Approvals: Date: Stop Date: SPC (Y/N): Date: Sequence ID/ Set Up/ Tool ID Tool # Plan Reject Reject Insp. **Operation** Accept Qty Qty Number Stamp Work Center ID Description **Run Hours** Code 240 0.00 Packaging *240* 0.00 Packaging Memo Packaging Identify and pack for shipping as per PPPD350-748-201 Location:

250

250

OC.

Memo

PPP Rev:

QC21- Final Inspection - Work Order Release

0.00

0.00

Quality Control

MF 12-10-15

Dart Aerospace Ltd

W/O:			WORK ORDER CHANGES												
DATE	STEP	PRO	CEDURE CH	ANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector						
			•												
						·									
Part No	•	PAR #:	Fault Cat	legory:	_ NCR: Yes	s No DQ	A:	Date:							
			Disposition: Q												
NCR:		V	VORK ORI	DER NON-CONFORM	ANCE (NC	R)									
DATE	STEP	Description of NC	Corrective Action Initial Action Description		ion B	Verific		Approval	Approval						
		Section A	Chief Eng	Chief Eng	Dat		on C	Chief Eng	QC Inspector						
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Picklist Print

July-11-12 10:34:03 AM

Work Order ID:

87219

Parent Item:

D350-748-201

Parent Item Name:

Crosstube Installation, High Aft

Start Date: 7/10/12

Required Date: 8/31/12

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev: A New Issue 06-07-05 JLM

IPP Rev: B Update qty of MS21042L5 06-09-12 KJ

IPP Rev C Combined manufacturing 08.04.02 EC verified by: DD

IPP Rev:D 08-06-24 revD as per dwg DD verified by:EC

IPP Rev: E 08.12.11 Step17 was step 21 KJ Verified by:EC IPP Rev:F 10.08.04 adde 4.3 DD verf:EC IPP REV:G ADD UNDER BEND COMMENT 12-05-28 JLM IPP Rev:F 10.08.04 added QSI010

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measur	Qty on e Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
ALS4-1032-225		Purchased	No			200	Each	2,664.0000	1	1			
Insert										and the second			
				Location		Loc Oty	Ī	oc Code					
				FP-B		2221							
				122	290	2221							
				ST281		420							
				108	696	146							
				110	768	62							
				118	386	55			 				
				118	966	68							
				121	269	89							
				ST282		23							
				120	410	10							
				120	451	13							
AN4-41A Bolt		Purchased	No			220	Each	411.0000	8	8			
÷				Location		Loc Qty	<u>I</u>	oc Code					
				360		181			 				
				121	185	181							
				ST360		230							
				115	108	3							
				115	705	1			****				
				118	838	8							
				119		68							
				120	423	150							

Dart Aerospace Ltd

W/O:			W	ORK ORDER CHANG	GES				,
DATE	STEP	PRO	OCEDURE CHA	NGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
Part No	:	PAR #:	Fault Cate	gory:	NCR: Yes	No DQ	A:	Date:	
	Re	esolution:	Dispositio	n: <u>`</u>	QA: N/C (Closed:		Date: _	
NCR:		,	WORK ORD	ER NON-CONFORM	ANCE (NC	R)			
DATE	STEP	Description of NC		· · · · · · · · · · · · · · · · · · ·	tion B	Verific	ation	Approval	Approval
		Section A	Initial Chief Eng	Action Description Chief Eng	Sign Date	Secti	on C	Chief Eng	QC Inspector
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Page 2

July-11-12 10:34:03 AM

Work Order ID:	87219								
Parent Item:	D350-748-201							ate: 7/10/12	Required Date: 8/31/12
Parent Item Name:	Crosstube Installati	tion, High Aft					Start	Qty: 1.00	Required Qty: 1.00
AN4-6A Bolt		Purchased	No		220	Each	1,363.0000	16	16
				Location	Loc Qty		Loc Code		
				ST356	1363				
				119017	363				
				121243	500				
				122151	500				
AN5-32A Bolt		Purchased	No		220	Each	277.0000	4	4
				Location	Loc Qty		Loc Code		
				ST339	177				
				119862	2				
				120423	75				
				122151	100				
				ST340	100				
				121541	100				
AN960JD10 Washer	NAS1149D0363J	Purchased	No		200	Each	0.0000	1	1
AN960JD416 Washer	NAS1149D0463J	Purchased	No		220	Each	29.0000	32	32
				Location	Loc Oty		Loc Code		
				ST351	29				
				116289	8			<u></u>	
				119097	21				
AN960JD516 Washer	NAS1149D0563J	Purchased	No		220	Each	12.0000	8	8
				Location	Loc Qty		Loc Code		
				ST338	12				
				2612	12				

Dart Ae	erospace	Ltd
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W/O:			WC	RK ORDER CHANG	ES				+ ;
DATE	STEP	PRO	PROCEDURE CHANGE						Approval QC Inspector
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Part No	•	PAR #:	Fault Cate	gory:	_ NCR: Yes	s No DQ	A:	Date: _	
	Re	esolution:	Disposition	n: <u>'</u>	_ QA: N/C	Closed:		Date: _	
NCR:			WORK ORDE	ER NON-CONFORMA	NCE (NC	R)			
D.4.T.	STEP	Description of NC		Corrective Action Secti		Verific	ation	Approval	Approval
DATE		Section A	Initial Chief Eng	Action Description Chief Eng	Sigr Dat	l&K Section	Verification Section C	Chief Eng	QC Inspector
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July-11-12 10:34:03 AM

Work Order ID:	87219							
Parent Item:	D350-748-201					Start	Date: 7/10/	Required Date: 8/31/12
Parent Item Name:	Crosstube Installation, High Aft					Start	Qty: 1.00	Required Qty: 1.00
D2856-400 Abrasion Strip	Manufactured	No		200	f	144.8425	1.181	1.2431579
			Location	Loc Qty		Loc Code		
			ST403	135.398				
			81875	135.398				
			ST409	9.4445				
			63735	0.6696				
			68076	0.3149				
			71164	8.46				
3500-1 addle	Manufactured	No		220	Each	51.0000	4	4
			Location	Loc Qty		Loc Code		
			ST423	40				
			85421	40				·
			ST425	11				
			76940	11				
3501-1	Manufactured	No		220	Each	232.0000	16	16
shing								
			Location	Loc Qty		Loc Code		
			ST051	232				
			67757	4			-	
			73391	6				
			74866	206				
			85414	16				
3502-1 pport	Manufactured	No		200	Each	47.0000	2	2
			Location	Loc Oty		Loc Code		
			LG050	37				
			77041	37				
			ST051	10				
			73419	9				
			74873	1				

Dart A	Aerospa	ice Ltd
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W/O:			W	ORK ORDER CHANG	ES				
DATE	STEP	PRO	OCEDURE CH	ANGE	Ву	D	ate Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
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Part No	•	PAR #:	Fault Cate	egory:	NCR: Ye	es No	DQA:	Date: _	
	R	esolution:	Disposition	on: '	_ QA: N/C	Close	d:	Date: _	
NCR:		\	WORK ORE	DER NON-CONFORMA	NCE (N	CR)			
DATE	STEP	Description of NC	Initial	Corrective Action Section Action Description		n &	Verification	Approval	Approval
*****		Section A	Chief Eng	Chief Eng	Da	ite	Section C	Chief Eng	QC Inspector
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Vork Order ID: Parent Item: Parent Item Name:	87219 D350-748-201 Crosstube Installation, High Aft		Pink N	W12-1911	¥ L.		ate: 7/10/12 Qty: 1.00	Required Date: 8/31/12 Required Qty: 1.00
350-748-241TRN Crosstube Turning Detai	Manufactured	No .	10 200	110 I	Each	2.0000	1 1	l
		Loca BSK LG	84667 61314 61315 79392	Loc Qty -1 3 0 0 1	Loc	<u>Code</u>		mo 12/10/8
IS21042L4 ut	Purchased	No	83287	1 220 I	Each	1,124.0000	24 2	4
		Loca	ation_	Loc Oty	Loc	Code		
		ST30	00	1124				
			119075	116				
			121011	193				
			121444	686				
			121652	129				
IS21042L5 ut	Purchased	No		220 I	Each	1,166.0000	4 4	
		Loca	ation_	Loc Qty	Loc	<u>Code</u>		
		300		500				
			121652	500				
		ST30	00	666				
			108827	4				
			116105	5				
			116548	43				
			119109	602				
			17651	4				
			2937	8				

Dart Aerospace Ltd

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W/O:			W	ORK ORDER CHANG	GES			· · · · · · · · · · · · · · · · · · ·		· (1
DATE	STEP	PRO	OCEDURE CH	ANGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
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Part No	• •	PAR #:	Fault Cat	egory:	NCF	R: Yes	No DQ	A:	Date:	
		esolution:								
NCR:			WORK ORE	DER NON-CONFORM	IANCE	(NCR)			
DATE	0750	Description of NC			ction B		Verific	ation	Approval	Approval
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng		Sign & Date	Secti		Chief Eng	QC Inspector
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Picklist Print

July-11-12 10:34:03 AM

Page 5

Work Order ID:	87219					
Parent Item:	D350-748-201			Sta	rt Date: 7/10/12	Required Date: 8/31/12
Parent Item Name:	Crosstube Installation, High Aft			Sta	art Qty: 1.00	Required Qty: 1.00
MS21920-20	Purchased	No	200 E	Each 127.0000	2	2
Clamp (per MIL-DTL-8	783C)				e	
		Location	Loc Qty	Loc Code		
		LG050	127			
		116799	8			
		120676	8			
		121067	2			
		121274	34 75			<u> </u>
4S27039-1-10	D 1 1	122254 No		Each 141.0000	1	1
Grew	Purchased	NO	200	Lacii 141.0000	1	1
ciew		Location	Loc Qty	Loc Code	65-44-50	
				<u>Loc Couc</u>		
		GA 120449	100 100		AN TO	
		ST291	5			
		120120	_			Parameter
		ST308	36			<u> </u>
		122027	36			

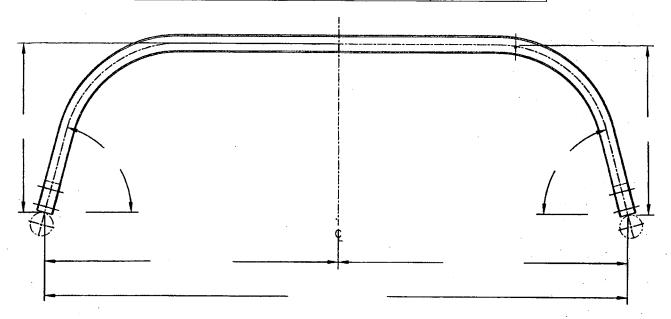
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W/O:			WORK ORDER CHANGE						
DATE	STEP	PR	OCEDURE CHAI	NGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approva QC Inspector
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Part No	•	PAR #:	Fault Cate	jory:	NCR: Yes	No DQA	\ :	_ Date:	11. 13.
	Re	solution:	Disposition); <u>`</u>	_ QA: N/C (closed:		Date:	
NCR:			WORK ORDE	ER NON-CONFORMA	NCE (NC	R)			
DATE	STEP	Description of NC Section A	Initial	Corrective Action Section Action Description	on B Sign	& Verific		Approval Chief Eng	Approval QC Inspecto
		Jection A	Chief Eng	Chief Eng	Date		л С	Ciller Eng	QC mspecio
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DART AEROSPACE LTD	Work Order:	87219
	- ·	
Description: Crosstube High Aft (AS350/355)	Part Number:	D350-748-201
1-0//	4	
Inspection Dwg: D350-748-241 Rev: E		Page 1 of 1

Required Dimension	Min	Max
Height	31.22	31.48
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06
Bending Passes	7	
Crushing		6%
Twist		0.25



	Side A	Side B
Bending Passes		
Crushing		
	Comments	

QC15 Inspection	
Date	

Rev	Date	Change	Revised by	Approved
Α	07.02.06	New Issue	KJ/JM	
В	10.08.23	Dwg Rev updated	KJ 🕠	·
С	12.04.16	Added bending, crushing & twist dimensions	KJ 9	

											DQA:	Date	2:	
NCR:	Yes	/ No				WORK ORDER NON-CONFORMANCE / UPDATE								
							QA Closed: Dat							
Work Ord	er:					DISPOSITION				AGAINST DI	EPARTMENT	/PROCESS		
Part No						Rework Scrap Use-as-is Work Order Update		Skid-tube Crosstube Machining Small Fab Thermoforming Finishing Large Fab Composite			-4	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other	
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		Cracks	•			Broken/Damaged		Inspecti	on Incomplete		Part Incorre	ct	Weld	
	-	Crushed/C	crimped.			Burrs	-	4	ions Incomplete/l	Unclear	Part Lost/M	issing	Wrong Stock Pulled	
	\vdash	Cuffs				Contamination		Mainte		_	Part Moved			
	-	Heat Treat				Countersink		Mislabe			Positioned V		 -	
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	Ripples in Bend					Drill Holes		Offset						

Out of Calibration
Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish Folio

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Description Item Qty **Part Number** -241 CROSSTUBE ASSEMBLY (AS 350/355 HI AFT) D350-748-241 CROSSTUBE (OR D6018-125) D6015-125 SUPPORT 3 D3502-1 D2856-400-710 ABRASION STRIP AELS-1032-225 INSERT NAS1149D0363J WASHER (OR AN960JD10) CLAMP (PER DART SPEC. M-MS21920-20) MS21920-20 SCREW MS27039-1-10

GENERAL NOTES:

1) MATERIAL: MANUFACTURED FROM D6015-125 OR D6018-125

FINISHED LENGTH = 122.700±0.06

2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2 CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2 PAINT OUTSIDE PER DART QSI 005 4.2

- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- IDENTIFICATION: DART PART NUMBER "0350-748-241" AND BATCH NUMBER ON INSIDE OF CUFF PER DART QSI 044 6.4 (VIBRATING STYLUS)
- WEIGHT: 29,85 lbs 7)
- PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.



11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING. ACCEPTABLE TO VERIFY TENSILE STRENGTH BY HARDNESS TEST PER ASTM E18 TO 40-45 HRC.

- 12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES. NICKS, OR DENTS, DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING INSAFETY AND THAT NUT HAS NOT BOTTOMED OUT AFTER TORQUING.



15) MAX TWIST AFTER BENDING: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.25 (ZN C1-3).

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F	TWIST	RC TEST OPT LIMIT (A8-1, (STOCK DIM	СР	10.11.23					
E	STAND	GENERAL N ARDS; RELC -3); ADD TOL	RF	09.09.30					
D	MAG. F	ARTICLE AN	CP	D6.10.31					
С	ADD C	AD PLATING	CP	06.08.14					
В	ADD D	6018-125 & PF	CP	06.06.30					
A	NEW IS	SUE	CP	06.03.31					
REV.			BY.	DATE					
DESIGN		P	DART AEROSPACE LTD						
DRAWN		92	HAWKESBURY, ONTARIO, CANADA						
CHECKE	D	<u> </u>	DRAWING NO. REV. F						
MFG. AF	PR.	Ey	D350-748-241 SHEET 1 OF 4						
APPRO\	ÆD.	- 	TITLE		SCALE				
DE APPI	₹.	4	CROSSTUBE (AS 350/355 I	II AFT)	NTS				
DATE	10.1	1.23	COPYRIGHT © 2006 BY DART AEROSPACE LTD 145 DOCUMENT IN PRIVATE AND CONFIDENTIAL AND IS SUPPRISO ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE ON CORPID ON COMMUNICATED TO ANY OTHER PERSON WITHOUT WAITTEN PERMISSISSIFFICIAL DART ARROSPACE LTD.						

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NCR: Yes / No WORK ORDER NON-CONFORMANCE / UPDATE															
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Work Order: DISPOSITION								AGAINST DEPARTMENT/PROCESS							
Part No. NCR No.						Rework Scrap Use-as-is Work Order Update		Thern	Skid-tube Crosstube Small Fab Finishing Composite	 	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other			
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Torque Waves in Extrusion					Drawing			Calibration							

Out of Calibration Out of Sequence

Outside Dimensions

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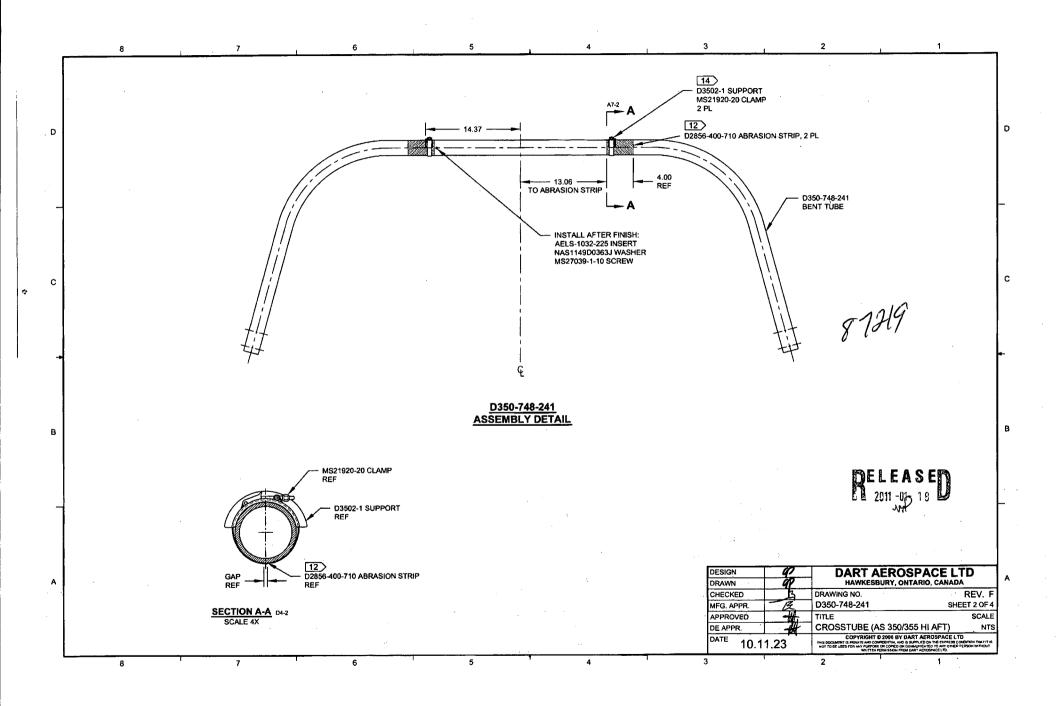
Date:

Turning Sequence

Wave/Twist in Tube

Finish Folio

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Outside Dimensions

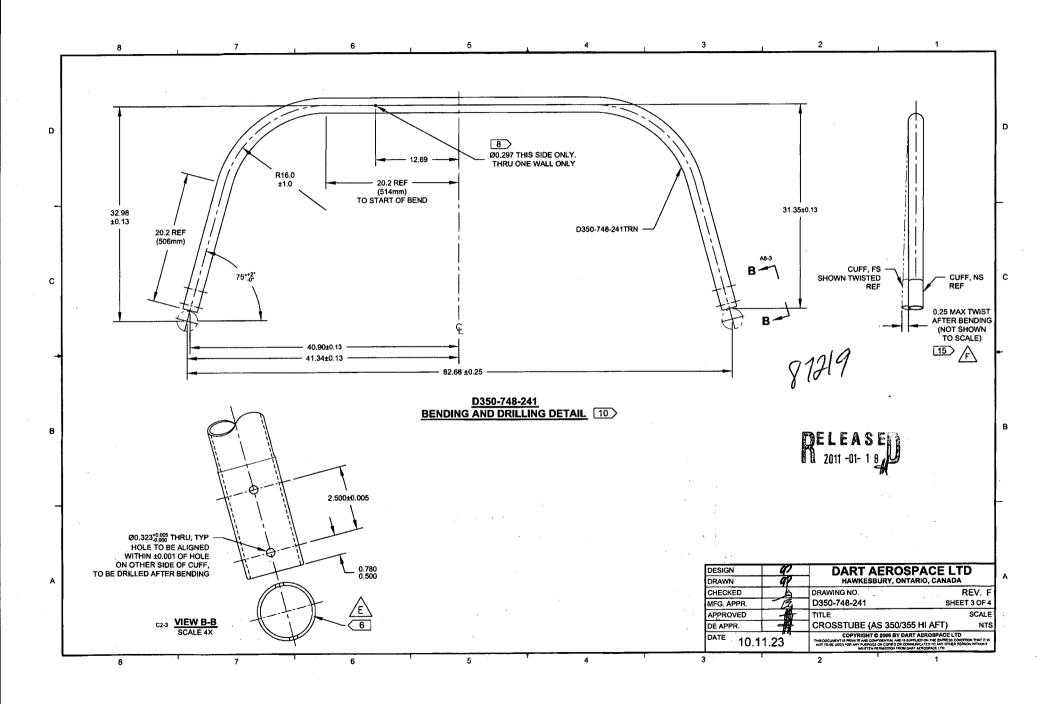
DQA:

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Wave/Twist in Tube

Folio

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Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

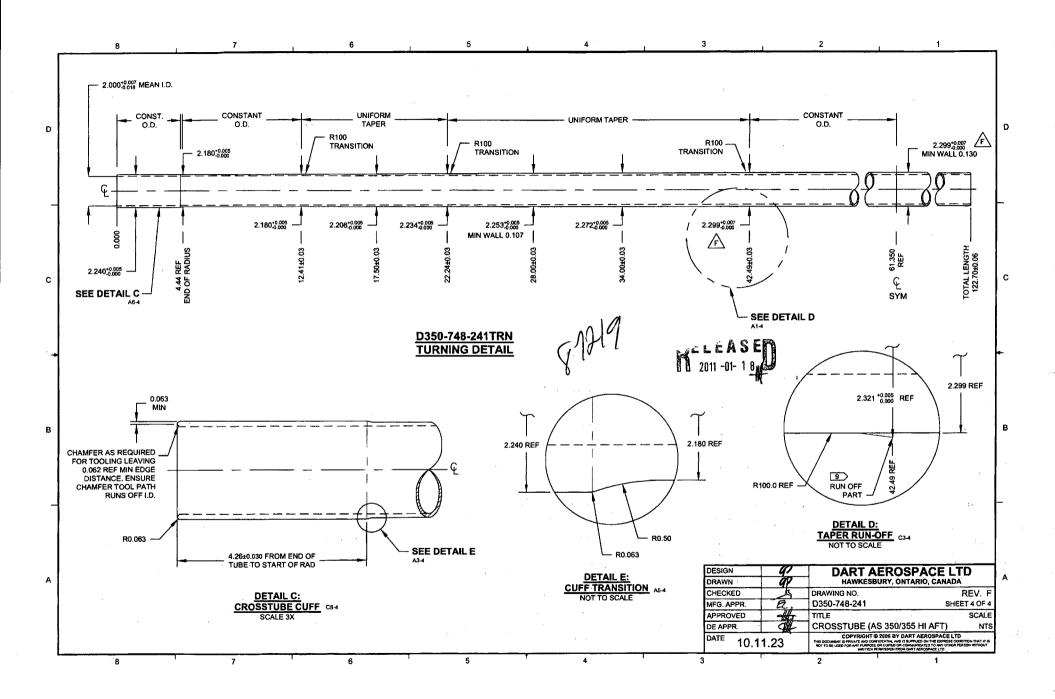
Torque Waves in Extrusion

Drawing

Finish

Folio

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NCR:	Yes	/ No				WORK ORDER NON-CONFORMANCE / UPDATE								
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Outside Dimensions

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Wave/Twist in Tube

Folio